

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-12, 20 drawn to a process for the oxidation of carotenoids, which comprises reacting a carotenoid in the presence of an enzyme having cytochrome P450 monooxygenase activity from bacteria of the genus *Thermus sp.*, and isolating the oxidation product.

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Group II, claim(s) 14-19, 21 drawn to a recombinant microorganism which is able through heterologous complementation to produce 13-carotene and additionally expresses an enzyme having cytochrome P450 monooxygenase activity.

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The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The technical features linking the process claimed and the microorganisms in Group II is that the

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invention of group I is drawn to process of oxidation of carotenoids in the presence of cytochrome p450 which results in the production of oxidized carotenoid compounds. However, the involvement of cytochrome p450 in oxidation of b-carotene to oxidation products such as astaxanthin was taught by Schoefs et al (FEBS Letters 500 (2001), 125-128). Schoefs et al teach that the synthesis of astaxanthin, a carotenoid known to require the presence of oxygen, NADPH and Fe^{2+} was completely inhibited by ellipticine, a compound known to inhibit p450 dependent enzymes. Therefore the only technical feature of Group I and II is obvious and not a special technical feature as defined by PCT rule 13.2 as it does not define a contribution over the prior art.

2. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product

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claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAGNEW H. GEBREYESUS whose telephone number is (571)272-2937. The examiner can normally be reached on 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
Art Unit 1656

/Robert B Mondesi/
Primary Examiner, Art Unit 1652